Ultrasonographic diagnosis of de Quervain's tenosynovitis

M Kamel, K Moghazy, H Eid, R Mansour

Ann Rheum Dis 2002;**61**:1034–1035

de Quervain's disease is a stenosing tenosynovitis. There is inflammation of the cellular lining membrane of fibrous tube through which the tendons of abductor pollicis longus and extensor pollicis brevis move, at the radial styloid process beneath the flexor retinaculum. The disease may occur in rheumatoid arthritis, other inflammatory synovitides, and pregnancy. Patients have considerable pain and a weak hand grip.

PATIENTS AND METHODS

We investigated the value of ultrasonography in the diagnosis of de Quervain's tenosynovitis and monitored the changes in tendon sheath after ultrasound guided local steroid injection. Twenty one patients with a clinical diagnosis of de Quervain's tenosynovitis and 10 healthy subjects were studied prospectively. We used a visual analogue scale (VAS) 0–10 and grip strength to measure pain.

The ultrasound examination was performed using an HDI 3000 from ATL (USA) with an 11 MHz linear array transducer. The marginal appearance of the tendon sheath in the transverse and longitudinal scans was examined and measured.

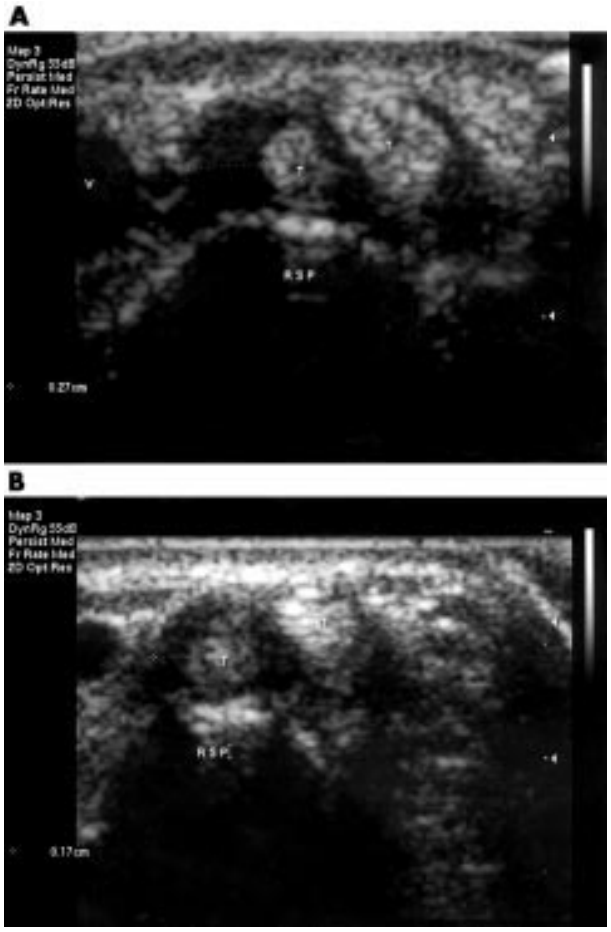

Figure 1 (A) Ultrasonographic transverse image of the symptomatic tendons of the abductor pollicis longus and the extensor pollicis brevis, showing a diffuse circumferential hypoechoic thickening of the synovial sheath (0.27 cm), giving a characteristic double target pattern, denoting de Quervain's tenosynovitis; (B) ultrasound transverse scans of the same patient. After one week of injection, note the decrease in thickening of the synovial sheath (0.17 cm). T, tendon; RSP, radial styloid process. 11 MHz.

RESULTS AND DISCUSSION

The ultrasound longitudinal scan of the symptomatic tendon showed distension in the tendon sheath with a surrounding fluid film giving the appearance of diffuse circumferential hypoechogenicity. The transverse scan of the tendon showed a double target pattern (fig 1A).

Several studies have shown that ultrasound is a reliable and sensitive method for detecting tenosynovitis.[1–5] This study on de Quervain's tenosynovitis clearly detected structural changes, even minimal tendon abnormalities, tendon inner structure, tendon thickening, effusion, and paratendinitis. The affected tendons were inflamed and thickened and showed a significantly increased thickness compared with normal subjects (fig 1A).

The affected tendon sheath was infiltrated with a combination of 15 mg triamcinolone diacetate and 2 ml of 2% lidocaine. After carefully identifying the area of the diseased tendon, the ultrasound guided 23"gauge needle was inserted through the sterile skin at the radial styloid process and advanced anteriorly and slightly downwards in a direction parallel to the tendon. The insertion of the needle into the tendon sheath and delivery of the therapeutic agents were done under direct sonographic visualisation. An ultrasound examination was performed after clinical evaluation and repeated immediately after infiltration of the therapeutic agents, then 1, 6 and 12 weeks later.

A significant decrease in the thickness of the tendon sheath was seen one week after the local corticosteroid injection, Complete relief of symptoms and signs was further observed at 6 and 12 weeks (fig 1B). No complications after injection were reported. The VAS 0–10 scale and hand grip strength were significantly improved after the local injection ($p<0.001$).

Recently, ultrasound has been used to direct the needle in delivering therapeutic agents into joints and enthesial sites with more accuracy.[6–8] Ultrasonography allows safe and correct placement of needles and injection of drugs into the tendon sheath. Ultrasonography helps to establish the exact location of the inflammation and directs delivery of the drug into the correct target by direct sonographic visualisation.[6 9] Therefore, this technique is cost effective in daily rheumatology practice. It also minimises the risk of iatrogenic damage and prevents intratendinous injection of the therapeutic materials.[7–10]

Our ultrasonographic study showed that the local steroid treatment was significantly effective in reducing pain and the amount of increased thickness and swelling of the tendons of the abductor pollicis longus and extensor pollicis brevis within a week after the injection. It was shown clinically to produce longlasting reversal of inflammation in the patients, as was demonstrated by the ultrasound examination follow up at weeks 1, 6, and 12.

We believe that ultrasound has both diagnostic and therapeutic value in the daily practice of rheumatology. The ultrasound technique is readily reproducible and helps to confirm the clinical diagnosis and treatment of de Quervain's tenosynovitis.

Authors' affiliations
M Kamel, Al-Azhar University, Cairo, Egypt; and Dr Fakhry-Al-Mouhawis Hospital, Al-Khobar, Saudi Arabia
K Moghazy, Alexandria University, Egypt
H Eid, Menofyia University, Egypt
R Mansour, Dr Fakhry-Al Mouhawis Hospital, Al-Khobar, Saudi Arabia

Correspondence to: Dr M Kamel, Dr Fakhry-Al Mouhawis Hospital, PO Box 251, Al-Khobar, Saudi Arabia; mkamel56@hotmail.com

Accepted 27 March 2002

REFERENCES

1 **Grassi W**, Filippucci E, Farina A, Cervini C. Sonographic imaging of tendons. Arthritis Rheum 2000;43:969–76.
2 **Wakefield RJ**, Gibbon WW, Emery P. The current status of ultrasonography in rheumatology. Rheumatology (Oxford) 1999;38:195–201.
3 **Backhaus M**, Kamradt T, Sandrock D, Loreck D, Fritz J , Wolf KJ, *et al*. Arthritis of the finger joints: a comprehensive approach comparing conventional radiography, scintigraphy, ultrasound, and contrast-enhanced magnetic resonance imaging. Arthritis Rheum 1999;42:1232–45.
4 **Kamel M**, Kotob H. Identification and prevalence of rheumatoid nodules in the finger tendons using high frequency ultrsonography. J Rheumatol 1999;26:1264–8.
5 **Grassi W**, Lamanna G, Farina A, Cervini C. Synovitis of small joints: sonographic-guided diagnostic and therapeutic approach. Ann Rheum Dis 1999;58:595–7.
6 **Koski JM**. Ultrasound guided injections in rheumatology. J Rheumatol 2000;27:2131–8.
7 **Kamel M**, Kotob H. Ultrasonographic assessment of local steroid injection in Tietze's syndrome. Br J Rheumatol 1997;36:547–50.
8 **Kamel M**, Kotob H. Ultrasonographic assessment of local steroid injection in plantar fasciitis. Arthritis Rheum 1997;40:1370.
9 **Kamel M**, Kotob H. High frequency ultrasonographic findings in planter fasciitis and assessment of local steroid injection. J Rheumatol 2000;27:2139–41.
10 **Kamel M**. Ultrasonographic assessment of local steroid injection in de Quervain's tenosynovitis [abstract]. Arthritis Rheum 2000;43.

Diagnosis of Takayasu's arteritis by unexpected findings on abdominal CT scan

A Muthumala, D S Appleton, J S H Gaston

Ann Rheum Dis 2002;**61**:1035–1036

We report the case of a 30 year old woman with atypical presentation of Takayasu's disease in whom the diagnosis was first made by an abdominal computed tomography (CT) scan.

CASE REPORT

A 30 year old woman was admitted for investigation of an eight month history of lower abdominal pain. The pain was cramping in character, preceded bowel motions, and radiated to the back. She also had a four year history of general malaise with fleeting arthralgias and myalgias, and persistently raised inflammatory markers had been noted. Past medical history included alopecia, occasional mouth ulcers, and pulmonary embolism two years previously. Both her father and paternal grandfather had died of "ruptured aortic aneurysms". Previous investigation of her abdominal pain at another hospital with an ultrasound scan had shown a small scarred right kidney.

On examination she was apyrexial, with a regular radial pulse of 84 beats/min and blood pressure of 120/70 mm Hg in both arms. There was a soft ejection systolic murmur which radiated to the neck. All peripheral pulses were palpable. Abdominal examination showed mild right iliac fossa tenderness with no guarding. Examination of the respiratory and nervous systems (including fundoscopy) were unremarkable. Investigations showed a raised erythrocyte sedimentation rate (ESR) of 88 mm/1st h and raised C reactive protein (CRP) of 77 mg/l. Perinuclear antineutrophil cytoplasmic antibodies

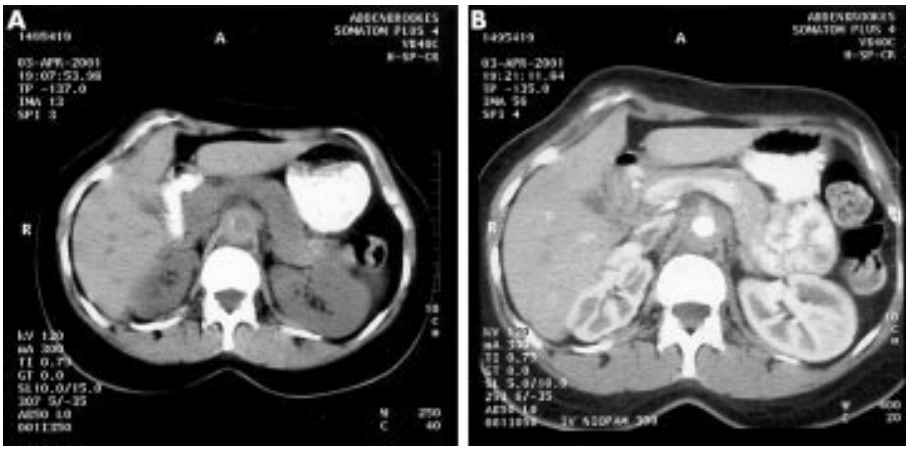

Figure 1 Abdominal CT scan without (A) and with (B) contrast medium. Note the thickening of the aortic wall on both images, with evidence of intimal calcification (A) and the encasement of the origin of the coeliac axis (B).